AMSAT News Service Weekly Bulletins
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AMSAT NEWS SERVICE
ANS-170

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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SB SAT @ AMSAT $ANS-170.01
AMSAT-NA Files Formal Comments on Proposed ITAR Changes

AMSAT News Service Bulletin 170.01
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.01

AMSAT submitted comments to the U.S. Department of State/Directorate of Defense Trade Controls (DDTC) on June 13, 2011 in response to their proposed rule making on International Traffic in Arms Regulations (ITAR), which would provide clarification on defense services, noting that public domain material is not subject to ITAR.

AMSAT asked DDTC to not only acknowledge that public domain materials are not subject to ITAR, but to expand the scope of how they view how materials are to be placed in the public domain. AMSAT requested that rather than focus on the method of placement of materials in the public domain (e.g. printed publication), the critical criteria should be the intent of the originator to broadly and freely make such material available to anyone who has the ability to access it via appropriate means, including electronic origination and distribution.

The full copy of AMSAT's comments will be published in an upcoming edition of the AMSAT Journal. An electronic copy of AMSAT's comments can be viewed on the AMSAT web at: http://tinyurl.com/3jtbff2

[ANS thanks AMSAT President Barry Baines, WD4ASW for the above Information]

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SB SAT @ AMSAT $ANS-170.02
Announcing AMSAT Project FOX Website

AMSAT News Service Bulletin 170.02
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.02

Alan Biddle, WA4SCA is pleased to announce that AMSAT's Project FOX website has been updated. Titled, "Introducing FOX, AMSAT-NA's Next Satellite!", this page brings you the highlights of:

+ "Why do we need Fox?"
+ A link to the Project FOX presentation slides from the Dayton AMSAT Forum
+ A Project FOX donation widget
+ FOX Project Status
+ High level project design goals
+ A call for volunteers to join the AMSAT FOX Team

Begin your exploration of the AMSAT FOX project at:
http://www.amsat.org/amsat-new/fox/

Here is a summary of AMSAT Project FOX design goals:

Development Phase:	Approved by the Board of Directors. Design in progress.
Projected Launch:	2013.
Space Frame Structure:	Standard 1U (One Unit) CubeSat.
Space Frame Size:	10 cm X 10 cm X 10 cm.
Mass:	Approximately 1.33 kg, ~ 3 lbs.
Orbit:	600 - 800 km, circular, depending on launcher.
RF:	500 mW EIRP, U/V (Mode B). Deployable antennas.
Transponder:	High density Software Defined Transponder (SDX).
Power source:	Deployable solar arrays. Lithium Ion or NiCd batteries.
Power mangement:	Maximum Power Point Trackers.

[ANS thanks Alan Biddle, WA4SCA for the above information]

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SB SAT @ AMSAT $ANS-170.03
It's Time to Get Ready For ARISSat-1

AMSAT News Service Bulletin 170.03
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.03

A few weeks remain before the planned July deployment of ARISSat-1 from the ISS. The AMSAT News Service will bring you more details in the coming weeks. Here are some reminders to help you get your station ready for ARISSat-1 operation.

145.950 MHz FM Downlink:

FM transmissions will cycle between a voice ID as RS01S, select tele-metry values, 24 international greeting messages in 15 languages and SSTV images. One of the messages will be a conversation between Yuri

Gagarin and ground control. See the next news item for pointers to get your station ready to receive the SSTV images.

435 MHz - 145 MHz Linear Transponder:

The linear transponder will operate in Mode U/V (70 cm Up, 2m Down). It is an 16 KHz wide inverting passband and the convention will be to TX LSB on the 435 MHz uplink and RX USB on the 145 MHz downlink. This mode is designed to work with low power transmitters and omni antenna.

145.919 MHz/145.939 MHz CW Beacon:

The CW transmissions will be callsign ID RS01S, select telemetry, and callsigns of people actively involved with the ARISS program.

145.920 MHz SSB BPSK-1000 Telemetry:

The BPSK transmissions will feature a new 1kBPSK protocol developed by Phil Karn, KA9Q to be readable in low signal level conditions. The BPSK data will transmit satellite telemetry.

The ARISSat-1 BPSK-1000 downlink is transmitted in SSB mode on 145.920 MHz. When the CW2 beacon on 145.919 MHz is active this indicates that the BPSK-1000 format is being transmitted. If the CW1 beacon on 145.939 MHz is active this indicates the backup of BPSK-400 format is being transmitted.

Transmitting at 100 mW, both BPSK rates include Forward Error Correction (FEC) and it is expected that modest quarter-wave antennas with low-loss coaxial cable will provide sufficient signal strength for decoding and display by the ARISSatTLM software.

An audio feed from an SSB receiver to the computer's soundcard input is needed. An initial "Receive Only" configuration is easily done consisting of an audio patch cable between your radio and the soundcard. Take the speaker or headphone output from the radio and run it into the line (or mic) input on your PC sound card.

BPSK-1000 sounds like a "shusssch" with a higher pitch than the 400 bps growl. It is difficult to tune by ear. The CW2 beacon is used as a tuning signal for BPSK-1000. The PC and Mac ARISSatTLM software display contains a dotted line that you use to tune your receiver until the CW signal bumps lines up with the dotted line on your PC screen. This will allow you to decode the BPSK-1000 signal and you will also be able to copy the CW2 beacon.

Download the Windows ARISSatTLM free ground station soundcard demodulator and display software:
http://www.arissattlm.org/download/ARISSatTLM_050_Setup.exe

Download the Mac ARISSatTLM software:
http://www.arissattlm.org/download/ARISSATTLM.zip

The ARISSatTLM software user guide is available:
http://tinyurl.com/42uhtyf (amsat.org)

Get your color ARISSat-1 Frequency Guide:
http://tinyurl.com/4t497t2 (amsat.org)

ARISSat-1 Presentation Slides (~1MB)
http://tinyurl.com/4n4pzkm (amsat.org)

[ANS thanks the ARISSat-1 Team for the above information]

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SB SAT @ AMSAT $ANS-170.04
ARRISat-1 Team Pointers to Get Ready for SSTV Reception

AMSAT News Service Bulletin 170.04
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.04

The ARISSat-1 FM downlink on 145.950 MHz includes live SSTV images as part of the cycling voice ID, select spoken telemetry values, and the international greeting messages. Here are some pointers to help you get your station ready to receive and dis- the SSTV pictures transmitted by ARISSat-1.

One fun feature is that there are four SSTV cameras mounted on the spacecraft. On photos of ARISSat-1 you may have noticed black brackets on the outside of the spacecraft. These hold the mirrors that reflect the light onto the lens of the cameras. The software-defined-transponder will use the image data from the cameras to generate the SSTV downlink.

ARISSat's software will sequentially select a new or stored image from one the four cameras. There are two pre-recorded images as part of the sequence. The camera that took the the picture can be identified by the color of the call sign in the upper left of the SSTV image. The SSTV image will be sent down as FM audio SSTV in Robot 36 format on 145.950 MHz about every 140 seconds.

The RF downlink power on the 145.950 MHz FM downlink will be 250mW which is predicted to provide a link margin around 6 dB on an HT with a 'big whip' when the satellite is at 15 degrees elevation. This should be sufficient to receive SSTV pictures although you may need to orient the whip to line up the antenna polarization.

ARISSat-1 is not stabilized so the antenna orientation is unpredict- able and a certain amount of fading will happen. The receiving link margin may be improved with a handheld beam such as an "Arrow", "Elk", or "Cheap Yagi" antenna.
(See: http://www.wa5vjb.com/references/Cheap%20Antennas-LEOs.pdf)

General Overview Radio-to-Soundcard Interface

To view the SSTV downlink from ARISSat-1 you'll need a computer running SSTV software for your soundcard and an audio connection between your radio and the computer.

If you are already on the air with other amateur radio soundcard applications chances are you are ready to receive ARISSat's SSTV downlink with little or no modification to your setup.

The audio from the radio to the computer is the key link. An initial "Receive Only" configuration is easily done consisting of an audio patch cable between your radio and the soundcard. Take the speaker or headphone output from the radio and run it into the line (or mic) input on your PC sound card.

Setting the level is simple also as the MMSSTV software has a bar indicator. Just adjust the sound card gain slider and/or radio volume control so that the SSTV signal is within the center part of the bar.

MMSSTV will give you an "overflow" indication if the volume is too high.

If your rig has a 'Line Out' connection this can be run to the soundcard 'Line In'. Using the radio 'Line Out' you won't have to deal with the interaction of the radio's volume control with the soundcard levels. But you will still need to use the soundcard 'Volume Control' to set the 'Line In' levels.

SSTV Software Download Sites

There are many amateur radio SSTV software decoding applications available. One of the easiest to use on Windows computers is the MMSSTV program. This can be downloaded from:
http://mmhamsoft.amateur-radio.ca/pages/mmsstv.php

The Ham Radio Deluxe software package also includes SSTV operation.

SSTV software for the Mac is available at:
http://web.me.com/kd6cji/MacSSTV/MultiScan.html

[ANS thanks the ARISSat-1 Team for the above information]

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SB SAT @ AMSAT $ANS-170.05
North America SO-67 Schedule For Field Day

AMSAT News Service Bulletin 170.05
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.05

The SO-67 command station has agreed to set the following start times for 15 minute activations over North America for Field Day.

Activations are -planned-, and are dependent on scheduling and battery state:

25 JUN 2011

1835
2255

26 JUN 2011

0030
0200
0335
0515
0645
1155
1335
1510
1640
1815

Uplink is 145.875, no tone, and Narrow FM if possible.
Downlink is 435.345, +/- Doppler shift.

Remember both ARRL and AMSAT Field Day rules limit QSOs to one per FM repeater/satellite. Even if you are not submitting a log, please

adhere to this procedure.

The above information along with additional Field Day information and links to the FD Rules documents can found on the AMSAT front page at: http://www.amsat.org.

[ANS thanks AMSAT VP Operations Drew Glasbrenner, KO4MA for the above information]

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SB SAT @ AMSAT $ANS-170.06
Visit the New AMSAT-UK Website

AMSAT News Service Bulletin 170.06
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.06

AMSAT-UK has a new website developed by Dominic Hawken G6NQO and the new webmaster is Rob Styles M0TFO.

The site features links to the new AMSAT-UK Online shop run by Ciaran Morgan, M0XTD. The online shop carries a range of hardware items/projects and software suitable for Amateur Ratio Satellite activities as well as the ability to join/renew your membership to AMSAT-UK.

Visit the new site at
http://www.uk.amsat.org/

The AMSAT-UK International Colloquium takes place July 30-31. The event is open to all and further information can be found at
http://www.uk.amsat.org/colloquium-2011

AMSAT-UK publishes a color A4 newsletter, OSCAR News, which is full of Amateur Satellite information. Join online at:
http://tinyurl.com/JoinAMSAT-UK

[ANS thanks Trevor, M5AKA for the above information]

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SB SAT @ AMSAT $ANS-170.07
AMSAT-UK Display at First UK Space Conference

AMSAT News Service Bulletin 170.07
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.07

AMSAT-UK will have a presence at the first ever UK Space Conference taking place at the University of Warwick on July 4-5. This is being organised by the UK Space Agency which was formally commenced in April this year.

AMSAT-UK has been sponsored by a member to have a small stand "booth" in the exhibtion area and will be among some very illustrious company.

AMSAT-UK will be displaying FUNcube models and demonstrating the educational outreach possibilities that we will have with the telemetry and

Fitter message download systems when matched with a simple groundstation
- the FUNcube dongle.

AMSAT-UK members will also be presenting short papers in the educational
and cubesat streams during the event.

Full information of the conference can be read on-line at:
http://tinyurl.com/3hb2y9j (www.intellectuk.org)

[ANS thanks Graham Shirville, G3VZV for the above information]

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SB SAT @ AMSAT $ANS-170.08
Satellite Shorts From All Over

AMSAT News Service Bulletin 170.08
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.08

+ AMSAT has received the sad news on the passing of Elizabeth Clark, wife of AMSAT Board Member Tom Clark, K3IO. A memorial service in the Washington, DC area will be held in the near future - Martha will post the details when available. A service will be held in about one month in Clinton, South Carolina at the family church where her ashes will be scattered. Donations can be made in Elizabeth's name to: The American Cancer Society, Box 22718, Oklahoma City, OK 73123-1718, The Susan G Komen for the Cure, ATTN: Donor Services, Box 650309, Dallas TX 75265-0309 or the charity of your choice. (Martha at the AMSAT office)

+ The AO-51 Command Team notes that over the last couple of days, we have been seeing some extended operational times after turning AO-51 ON. Your reports from around the world for the next few days will be especially helpful! Information about when it's ON and when it's OFF is of great interest right now and for the next few days. The best place to let everybody know is at: http://oscar.dcarr.org/ (AO-51 Command Station, Mark, N8MH)

+ The AMSAT Office has received notice that the Canadian Postal Strike may affect delivery of AMSAT mailings to Canada. Canada Post has currently suspended operations around the country.

+ Congratulations to the following on earning the new 5 in EM55 Award for working five (5) different hams in the EM55 grid:

CALL	AWARD NUMBER	ISSUE DATE
WA4NVM	1	6/4/2011
WA4HFN	2	6/4/2011
KI4OTG	3	6/4/2011
K8YSE	4	6/4/2011
N9AMW	5	6/5/2011
KB0RZD	6	6/14/2011
W5KUB	7	6/17/2011

  You do not have to be in your home grid to count the stations worked. There are several satellite ready hams in EM55. Here is the current known list: WA4NVM, WA4HFN, WB4LHD, WA4OVO, KI4OTG, KD4NOQ, KJ4BIX, AND AJ4KF.

  Send your log to WA4NVM or WA4HFN for checking, along with your

current mailing address. The award is free and should any donations be sent, they will be forwarded to AMSAT along with your call and name.

This award will be effective 1 June 2011, therefore, all contacts must be on or after this date.

+ Trevor, M5AKA invites you to view these video features on the Southgate ARC web site:
Video of Astronaut Doug Wheelock KF5BOC at Dayton
http://www.southgatearc.org/news/june2011/kf5boc_video.htm

ISS contact with students in Enniskillen can be seen at
http://www.southgatearc.org/news/june2011/college_congratulated.htm

+ Congratulations to AMSAT's Bob McGwier, N4HY on his new postion as the Director of Research Hume Center for National Security and Technology and Research Professor, ECE at Virginia Tech. See:
http://tinyurl.com/3cnxop7 (vt.edu)

+ Congratulations to Astronaut Mike Hopkins (Expedition 37) upon passing his amateur radio Technician License exam on June 9.
His call sign should be issued soon.

+ The Okaw Valley ARC has a very nice web page devoted to their May 6 ISS contact by the Greenville Elementary School. Video is included: http://ovarc.net/isscontact.htm

+ If you captured any of the Phonesat UHF beacon data during the NASA AMES high altitude balloon flight on June 9 please send it to:
mikesafyan@gmail.com

+ Congratulations to Chris, KC0YBM, for achieving his Satellite VUCC Award #215!

+ Paul, 2E1EUB will be operating mobile on AO-7 and other satellites from the Islands of Harris and Lewis, off the west coast of Scotland for about 2 weeks between July 2-11. During this trip Paul will also be mobile in northern Scotland and the Island of Skye. He will also post information on his QRZ.com callsign lookup for 2E1EUB.

+ The next Hudson Valley Satcom Net is scheduled for June 23 at 8PM EDT (UTC-4) on the 146.970 MHz repeater, (Pl 100), and also on Echolink node N2EYH-L. More info: http://www.hvsatcom.org (Stu, WA2BSS)

+ Paul, VP9MU says he has re-activated the AMSAT-BDA (Bermuda) web pages at: http://www.amsat-bda.org The main function of the site is hosting the General Astrodynamics Library and will be hosting additional items in the future.

[ANS thanks everyone for the above information]

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SB SAT @ AMSAT $ANS-170.09
Follow Up to Receiving STEREO-B at 219 Million KM

AMSAT News Service Bulletin 170.09
>From AMSAT HQ SILVER SPRING, MD.
June 19, 2011
To All RADIO AMATEURS
BID: $ANS-170.09

James Miller, G3RUH sent an interesting follow up to the ANS news of AMSAT-DL success in receiving the 8 GHz downlink from the solar observation STEREO-B satellite. A FUNcube dongle and downconverter were used in the the demonstration documented in the videos on the Southgate ARC site (See: http://tinyurl.com/6eukmjv - "AMSAT-DL break FUNcube Dongle distance record).

James wrote, "Actually, the Stereo-A and Stereo-B spacecraft are received (more conventionally) every day, and the data automatically forwarded to NASA. The Bochum Dish, operated by AMSAT-DL is one of four "Partner Stations" downloading the low speed Beacon telemetry for NASA/NOAA. The others are DL0SHF at Kiel, CNES in Toulouse, France, and NICT at Koganei, Japan. And one more station is urgently needed, especially from North America."

There is a comprehensive article about this work at:
http://www.amsat.org/amsat/articles/g3ruh/127.html

Data is transmitted from STEREO in one of two modes; (a) high speed (currently 720 kbps), stored data (up to 1 Gb), intended for the Deep Space Network (DSN) to collect the high resolution science data some 8 hours/day, and (b) a low speed 633 bps continuous real time subset of the solar data intended for collection by smaller ground stations.

AMSAT collects low speed data. The ground stations then forward the data via the Internet to NASA GSFC for processing where it is posted on the web in near real time for all to use, including the various world wide organizations monitoring and predicting Space Weather. The ground network for the low speed data is organized and coordinated by the SWPC in Boulder, Colorado.

The spacecraft transmit 63 watts to a 1.1m dish at 8.4 GHz RHCP, an e.i.r.p. of approximately 85 dBm.

[ANS thanks James, G3RUH for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And, with that please keep in mind the ham who figured he had some explaining to do when his young daughter announced, "I'm just like mommy! I put on the Oil of Old Lady lotion you said she uses!"

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM